I. Waldburg

TERMS—Three Dollars per annum, payable in advance.

THE

SOUTHERN AGRICULTURIST,

FOR THE PROMOTION

OF

AGRICULTURE, HORTICULTURE, RURAL AND DOMESTIC ECONOMY

IN THE

SOUTHERN SECTION OF THE UNITED STATES.

NEW SERIES.—VOLUME VI.—NUMBER 11,

NOVEMBER, 1846.

PUBLISHED BY A. E. MILLER,
No. 4 BROAD-STREET.

CHARLESTON:
PRINTED BY MILLER & BROWNE,
Old Stand, No. 4 Broad-street.
1846.

☞ WEIGHT 2 ounces—POSTAGE, 3½ cents.

CONTENTS.

Terms of the Southern Agriculturist.

Three Dollars, payable in advance;—for two copies $5; Societies and Clubs can be supplied with ten copies for $20, payable in advance.

The Southern Agriculturist.

(NEW SERIES.)

Vol. VI. NOVEMBER, 1846. No. 11.

ANNIVERSARY ORATION.

Delivered before the Burke County (Geo.) Central Agricultural Society, January 13th, 1846. By M. C. M. Hammond.

[Concluded from page 371.]

But this view is immediately connected with the other great question which I propose to consider. *How are our crops to be diversified?* If to make manure we pen our hogs and cattle, they must be fed, and to feed them properly we must make far greater provision than we do now. In the system of enclosing, pastures and artificial grasses must of course be left out of consideration. Although the foreign grasses, like almost all foreign productions, have been, and may again be, grown successfully in our genial climate, yet we can better employ our land in the cultivation of substitutes; and first among them, our great product of Indian corn. Wonderful as cotton is to the external man, and the world, in all its relations of clothing and commerce, *it is infinitely less so* than is this plant to home economy, the subsistence of man. In the beautiful system of ancient Mythology, the olive was held sacred to the Goddess of Wisdom, and other fruits to certain other divinities; with more propriety might the Red-man have consecrated his incomparable maize to the Great Spirit whom he worshipped. Indigenous to this continent, unparalleled in value, and of universal use, reaching nearly five hundred millions of bushels annually in the United States, it should be regarded *par excellence*, the National Plant. It is applicable to a greater variety of nutritive purposes than any plant that grows. Its grain supersedes as food the use of all the small grains, including rice, and if man will drink spirituous liquors, which I presume he will do more or less for all time to come, it furnishes the most wholesome of alcoholic stimulants. Given separately, it is the most strengthening food for work animals; and ground in an improved mill with the cob, or cob and shuck, it is the cheapest, and, as abundant experience can testify, the healthiest and most nutritious provender that can be used. Its leaves make our fodder the great substitute for hay. The stalk contains, at a certain period of its growth, a large quantity of saccharine juice, and when properly managed, yields a high per centage of sugar, superior in granulation to that derived from the maple tree, and nearly equal in all respects to that from the cane. After some ex-

perience, it has been calculated in Indiana that an acre of land which will produce 50 bushels of corn will make from 6 to 800 lbs. of sirup, of which two-thirds or 500 lbs. would be sugar and one-third molasses. In Delaware, in 1843, a single acre of corn yielded 500 pounds of sugar, 50 gallons of molasses, and more than 6,000 lbs. of fodder, all of which sold for $86. Here is an opening for our enterprise. Sugar will not soon be a drug in the market. The advance of civilization increases its consumption. It is becoming a *necessary* all over the world, and wealth and luxury mould it into a forms for use. What else can we plant that will return us $86 gross per acre? Cotton does not ordinarily realize us more than a tenth of this amount, nor will any thing that I am acquainted with make, in the long run, so profitable a return as sugar. The method of making it is by no means expensive or difficult to learn. Ten dollars will suffice to construct a mill for grinding, which will answer all purposes for a number of seasons, and double that amount will provide a boiler that will last indefinitely. Experience will soon teach the best way to manage the stalk and the proper time for cutting, and likewise remove all obstacles to succes in clarifying the juice, and in granulation.

The extensive roots of corn is not the least of its remarkable properties. A single stalk, presented last year by Mr. Skinner to the National Gallery in Washington, measured on estimate, about 8,000 feet of roots, when it had been growing only two months. This of course was extraordinary, but commonly they are greater than those of any other annual plant, and beyond competition in enriching the ground with carbonaceous matter. Hence we perceive the infinite advantage of deep or subsoil ploughing, to give facility to the roots to descend and diverge; and likewise how important we might render corn, in the renovation of our lands. Sown broadcast after deep breaking, and turned under when in tassel, it would be an ample coat of manure for a fair growth of cotton, wheat or any other crop.

This product may, however, be applied as food for animals, in a mode not in use among us at all, which is destined to contribute largely towards subsisting our stock, at least; and with the cob and corn-meal, to supersede almost entirely all other provender. When sown or drilled and cut before in the silk, and cured with stalk, leaves and shoots, it furnishes a fodder, fattening and grateful not only to cattle, but to horses, mules, sheep and hogs. It will answer the purpose of corn and fodder both, and if first submitted to the cutting knife, would be all consumed. A piece of land in South-Carolina sown last year with three bushels of seed to the acre, returned at the rate per acre of 27,000 lbs. of well cured forage. If we will manure heavily, and drill the seed to enable us to work it once or twice, we can exceed even this amount. Thus a very few acres would supply all our stock the year round.

With such abundance of provender at so small an outlay of manure and labor as this source, with others to be mentioned hereafter,

would supply, we could profitably consume corn on our plantations far more extensively than we do now. We could rear all the improved stock found valuable to us—manufacture any quantity of manure, and supply ourselves amply with meat, so sure an indication of prosperity where abundantly raised. Although we might not find a market for any large quantity of corn itself, yet the general and enlarged culture of it would confer upon our own, as well as it is with other people, the signal blessing of reducing to the lowest price the "staff of life;" while by feeding it away bountifully, we could sell it indirectly at a fair value in beef, pork, bacon and butter. For these articles, we should find for a long time ready sale at home, and at first even for our corn; for corn is shipped to South-Carolina and Georgia in large quantities, from other States. Our butter is chiefly imported from the North, and all our cheese. Our bacon comes from Cincinnati by way of New-Orleans, and our pork is driven over the mountains. But ample as it might be for our day, we would not be restricted to the home market. By reference to our National statistics, will be seen the immense export of all these articles, and the reasonable price they everywhere command. The whole world would be open to our competition, and while consumers are multiplying over the globe, and we possessed the advantage of cheap transportation to the seaports, we could at least fare as well as others engaged in this trade.

Considering the inestimable value of Indian corn, I am inclined to think it our true policy—and one which will ere long be forced on us, whether we will or not—to make it at once our main crop, and to hold all others, especially cotton, subordinate to it. For this reason, we should now direct our attention seriously to studying its character, and improving its cultivation as well as its use. Making with ease a sufficiency for existing wants, we have been heretofore culpably negligent in its cultivation. There must be some radical defect to occasion the marked contrast in its production here and in the North. Our climate it is said is too hot for its perfect growth. True as this may be to some extent, it is probable, also that our tillage is not adapted to the climate. Our soil can be strengthened, and if the heat of our sun cannot be mitigated directly, its worst effects may be evaded by skillful management. A hundred bushels of corn to the acre has been averaged repeatedly on good sized fields of native land at the North, while we rarely gather over fifteen bushels, and on our unmanured, older land, from eight to ten in a fair yield. Their most enriched acre, in the gravelly soil of Connecticut too, turned out in 1844, 151 bushels; and another in New-York produced some years ago 174 bushels; and a ten acre lot in Ohio averaged per acre 193 bushels—while we have reached certainly only 89 bushels in this State, and last year 113 bushels in North Carolina, and I have good reason to belive that 112 have been made on Savannah river bottom. Still, this result is not discouraging. It shows the advantage of closer planting and manureing; and as a thousand acres may be brought to the same productive

capacity as one, it proves also, that we *can do* much better than we *are doing*.

It is far easier to enrich and till one acre with such effect, than to work ten after our present fashion. The land would improve yearly; the laborers would perform their tasks with more cheerfulness and ease, and in housing the produce, our satisfaction would be imcomparably greater. Supplying annually abundant nutriment, there would be no need of fallowing. De Candoll's theory of roots excreting substances hurtful to their repeated growth on the same soil, existing only in conjecture, the rotation system might be abandoned. Suitable land could be selected and corn perpetually grown, each year increasing its produce over the last, until the soil attained what is unknown yet, its maximum productive ability.

But our common culture I fear has its evils, and with the hot sun, must share the responsibility of failure. Perhaps we usually work our corn too late in the season, and thus cut the roots at the critical periods of tasseling or shooting. We may plant too wide apart, in the stronger lands particularly, and lose the benefit of shading the soil, which checks the growth of grass and protects the roots. We should break the land deep at first, since the roots will not spread so much if they can descend, and will be less apt to be cut, will gather more nutriment when manured in the hill, and suffer less in a dry season, provided the surface has strength to impel them to the clay subsoil where moisture is perpetual. We should plant early, since it always increases the grain, and it is equally important to gather as early as it can be preserved, for here likewise the grain is augmented. In short, by careful experiment and judicious reflection, I have no doubt any ill effects of climate may be overcome, and this invaluable plant grown in its utmost perfection on our soil and under our sun; *and that, from corn alone, sold in the grain, or manufactured into sugar, or fed away and sold in meat, every planter will soon make it, as all should do, an invariable rule to pay all his plantation and family expenses.*

But we have other products to aid in subsisting our people and stock, which have attracted our attention to some extent, yet they merit at this crisis more serious regard. Our climate and soil are well adapted to turnips, and they may be grown as successfully here as any where in the world. One of our members estimated the yield of a single acre of his land at near 2,000 bushels of bulbs. This is equal to the highest produce in England, where turnips are an important crop, and its amount greatly increased by spade cultivation, which is proved to be the best. Twenty years ago, 5 to 600 bushels to the acre was counted an immense yield there, whereas 15 to 1800 bushels per acre is by no means uncommon now. By adding to the ordinary mode of cow-penning, large quantities of peat or dried mud saturated with the drippings of the stable and 20 or 30 bushels per acre of pounded bones, I am convinced that we can equal in amount of turnips any thing on record. Bones have indeed become so highly appreciated, that in the German States,

a tariff is imposed on their exportation. Consisting largely of lime and phosphoric acid, they are valuable likewise for corn and cotton, but the supply is too limited to make it more than an object to collect and pound or grind them for our turnips.

The Jerusalem artichoke is also capital food for cattle, but especially for hogs. It is planted and cultivated precisely like corn, and in good land from 500 to 1,000 bushels of tubers per acre is not unusual. The leaves make equally as good fodder as those of corn, and about as abundant, and the stalks likewise are as good absorbents for our compost heaps. It has been asserted that a single acre of them will furnish food for twenty hogs for four months. Like corn and the cow-pea, it would be highly useful in restoring land, and being easily destroyed with the plough, would never become troublesome to other crops.

The sweet potato is too generally planted, to do more than allude to it as excellent food for our negroes as well as our stock. It is one-fourth as nutritious as meat itself, or three lbs. are equal to 12 ounces of bread, and 5 ounces of meat. It certainly merits more extensive cultivation.

Wheat and rice might be grown for our own consumption, and when over supplied at home there are foreign markets for them both, which are never glutted. Our heavy loams and strong clay lands would yield fair crops of wheat. Seventy bushels have been gathered from an acre, and 56 bushels averaged on small fields in England; and an extraordinary yield on a small spot properly prepared and drilled at intervals of six inches, attained the enormous amount of 320 bushels pro rata per acre! Seventy-eight bushels have been cut from an acre in New-York; 68 from an acre in Ohio, and 64 bushels have been averaged on large fields; and it is believed at the North that drilling and judicious culture will turn out on good land in this country 100 bushels to the acre. As with respect to Indian corn, we are far behind these results; but when we turn our attention strictly to wheat, I see no reason why we should not reach the average production of any other region. Our climate cannot be an obstacle, since in warmer countries in olden time, in Egypt, Chaldea and Italy, immense crops of it were made, and the then known world was mainly supplied from these sources, in the periods of their respective prosperity.

Flour is imported very considerably into this State. The entire wheat crop of Georgia for 1844 was little over a million of bushels in a general crop of near one hundred millions. Here is an ample market for us, and could we by possibility over-supply it, England would consume the surplus at a compensating price. Her deficiency of crop last year was estimated variously at from twenty-five to fifty millions of bushels, and her population increasing faster than the ability of her land to feed them, and her corn laws being soon to be repealed, she will always offer a good market for flour. Our Southern flour, too, is the richest in the world. Analysis has proved that the flour made in this country is eight to ten per cent. richer in

the essential principle of gluten than any made in Europe, and the farther south it has been tested among us the richer is the wheat.

Rice, it is said, will grow wherever corn will, and it is remarked also, that our up-country rice is larger grained, whiter, and more nutritious than that in the tide-water region. Planted in our richer drained land, it would yield a fair crop, and although the grass would be difficult to kill without flooding, still the cultivation would well repay us the labor expended. Its consumption is increasing everywhere, and its great productive regions are mainly confined, at least in America, to the low country of Carolina and Georgia.

Some of our planters are already wisely turning their attention to tobacco. This weed, while bitterly reviled by many, is yet esteemed by a large majority of those who have access to it, as one of Heaven's choicest gifts to man. To millions it is a comfort, for which nothing can be substituted, and it may be regarded as certain that its consumption will go on increasing to the end of time. We now purchase all that we use, and at comparatively a high price. It is discreditable to any planter to buy his tobacco, and in a few years it will so be universally considered. We can readily grow it to an extent far beyond our own demand. Three to four hundred dollars have been realized in a season in Florida from a single acre in tobacco, but if the fifth of this could be made here we would be fully satisfied. Eight hundred pounds have been gathered from an acre in this State, and if it were from the Cuba seed, and it is true that eight pounds will make a thousand cigars, this yield would produce 100,000 cigars; these, if sold for only 25 cents per hundred, would bring the handsome amount of $250. This crop is so exhausting to land, as to abstract in the fair produce of an acre, as much as 170 pounds of mineral matter, yet reasonable success compared with the calculations made, would authorize a large expenditure of manure and labor in its production.

Indigo, an extinct staple, might be revived and grown again to some extent. It commands fram 30 to 50 cents a pound, and an acre of land will produce about 500 weight. It grows wild among us, and the weed of this wild plant is better than that from imported seed, showing the perfect adaptation to it of our climate and soil. Some trouble and expense are required in its preparation, but they would be fully compensated.

Madder, likewise, would well repay the labor of cultivation. It has been introduced recently in Ohio with great success, where it is ascertained that strong soils will yield from two to three thousand pounds of it per acre. It sells for 15 cents a lb. This demands also some skill and much care in its culture and preparation, but under the system of Agriculture I suggest, skill and care, now so wholly wanting in nearly all our operations, will soon be abudantly and habitually applied to every kind of crop. Both these dye-stuffs are extensively used in the factories at the North and all over the world, and if manufacturing continues to increase here likewise, as

I think it certainly will, a home market would be opened for them, which, at least, we should endeavor to supply.

I should hesitate to recommend any planter, entirely unacquainted with the business, to invest largely in the cotton manufactures now springing up in our region, and least of all, to undertake himself to direct one; but unquestionably it is our interest to encourage them by all the means we can properly use. Such planters, however, and other citizens as have risked and are now risking themselves in these, to us, somewhat novel enterprises, and the strangers who may come among us for the same purpose, are entitled to our highest gratitude for their enterprise and patriotism, for which, in good season, we cannot fail to reap great advantages. It time, they will become safe depositories for our surplus funds, and our children may be trained up their management. They will be consumers not only of our cotton, but of all our agricultural productions; will concentrate some of our population, which would tend to better education; by employing, divert some of our labor from staple cultivation, and diminish its aggregate production; will introduce or give life to capital among us, and set us the best examples of industry, skill, care and economy, in the application of scientific principles to manual operations, and of the inestimable importance in all our pursuits of intelligence ever looking forward, and energy that never fails.

But there is a kind of manufacture equally appropriate to us as that of cotton wool, and I am not sure that it would not be as profitable. Accumulating an abundant supply of manure from the means I have suggested, we might appropriate our cotton seed to a better purpose. Invaluable as they have heretofore proved as manure, we should dispense with them in view of a higher economy. A valuable oil may be expressed from them, which burns, when fully refined, as well, it is said, as sperm oil. It has double the strength of light from coal gas, and makes also a good oil for paint. Besides, a cake results from its manufacture of great use in feeding milch cows, and fully as good as that from rape seed so celebrated in Europe. A bushel of seed weighing thirty pounds gives over two quarts of oil and more than twelve pounds of oil cake. The crop of Georgia for 1844 was estimated by Mr. Ellsworth, Commissioner of Patents, at 532,000 bales of cotton, though in reality it turned out less: counting 25 bushels of seed per bale, after deducting five bushels for planting purposes, it would have yielded more than thirteen million bushels of seed, which would have expressed over seven million gallons of oil, and have furnished about one hundred and sixty million pounds of oil cake. Valuing the oil at only 50 cents a gallon, (and we pay twice that sum now for an inferior article,) would give over three and a half millions of dollars; and estimating the cake at only 1 cent a pound, would give over one and a half million more: in all, more than five millions of dollars! By converting our cotton seed into marketable materials, we would by this calculation add about ten dollars to the value of each bale of

cotton! This is an important consideration and merits our deliberate attention.

This diversifying of our agricultural operations, which I have endeavored to show, may be readily and profitably effected, and which, in time, must inevitably be done, would curtail the amount of cotton planted to so much as we could make clear of all expenses, and in most cases reduce it even lower. However little that amount when exchanged for money might appear, I suspect that it would be more than most planters make clear now. Yet, if our soils were highly improved, although the culture were reduced to two-thirds in the quantity of land, it is very probable that as much cotton might be gathered as is now done. Dr. Cloud, whose system of cultivation, so far as the manuring is concerned, at least, is unquestionably the true one for us, declares that ordinary land has been made to yield from 3 to 5000 lbs. seed cotton per acre. If, however, the plan were universally adopted, and its effect should be to diminish the quantity of cotton, it would only enhance its value, and thus the ultimate result would be the same.

With this view, could the war which is threatened, if it is declared, *continue for a few years only*, I have no doubt it would prove in the end, as beneficial to the Southern planter as it certainly would to the Northern manufacturer and the Western farmer. However calamitious it might be to the commercial interests, and perhaps to the sea-port cities and the coast planters, yet by reducing our staple to a price at which we could not grow it, would force us generally, and at once, to abandon its cultivation for foreign markets, and to adopt substantially, the very scheme that I recommend. Temporary losses would of course follow, but we would soon raise our own provisions, and indeed compete in the common markets with other regions in supplying all the necessaries of life—would manufacture for ourselves whatever was practicable and profitable, and bring into immediate practice all the rules of household and plantation economy. A short period would serve to confirm this diversion from cotton planting, and the demand for it again on the return of peace, would probably recall us to only so much of its cultivation as we could attend independently of our more important productions.

In connection with the restoration of land and the changes of cultivation, it is important likewise, to improve our implements of labor. Among these, from the earliest times, the plough has been the great instrument in agriculture. For hundreds of years it underwent little or no change, and though greatly altered in size and form, and much varied in its modes of use within half a century past, and even modified in the last few years, still it is no doubt susceptible of farther improvement. As we cannot supersede by steam or otherwise the use of animal power in ploughing, the source of greatest expense to the staple planter, the grand desideratum is to perform the most effective and the largest amount of work, with the least exertion of it. Thus have been introduced the sweep, and for deeper ploughing the half shovel or turn plough constructed

with mathematical accuracy; and upon this fundamental principle must be based all useful alterations and interventions of the plough.

It may not be inappropriate to allude here to our communications to market. For a long time to come, it is feared, that our enterprise will prove insufficient, to construct a railroad from the eighty mile station to Augusta. Wagon transportation, to which we must continue necessarily to resort, is highly expensive. Every bale of cotton, and other produce in proportion, thus conveyed to Augusta from this part of the county, costs at least one dollar. It is a little less to the railroad, and something cheaper still to the river. But the larger part of this outlay might be readily saved to us. Briar Creek, which has been partially cleared out once already, could be rendered navigable for pole boats, at least as high as Ray's bridge. A company, on condition of removing the obstructions, would find little difficulty in obtaining from the Legislature the privilege of exclusive navigation for a series of years; and a few thousand dollars judiciously applied by them, which would be tenfold repaid, would thus afford us a safe and cheap outlet to market for all our produce, and enable us to receive our supplies direct from the sea-ports, at the cheapest rates. It would even be preferable to a railroad, since ours would be "way freight" and be liable to continual neglect, and all the charges would be higher, and only counterbalanced by the single advantage of speedier transportation. Its tendency too would be to rebuild and enlarge our county town, to keep much of our money in circulation among ourselves, and confer benefits which would be felt throughout the county.

But I have done. I have trespassed long on your attention. The magnitude and inappreciable importance of the subject, excuse, if they cannot justify me. We have a great work before us. The welfare and happiness of ourselves, of our children, and of our country, rest upon the exertions we are at this crisis, called on to make. What higher motives can address themselves to man, to stimulate him to collecting information—to deep reflection—to decisive judgment—to bold and vigorous action? If they fail to do it for us our fate is sealed, and the same historic page which depicts it, will record that we were not worthy of a better. But, gentlemen, I am full of hope. I know too well the noble character of Southern planters to despond. I perceive already the right spirit at work among us, and I look forward with sanguine expectation and cheerful faith, to see, at no distant day, our broad lands renovated and our country rescued by the virtue and intelligence, the indomitable courage and persevering energy of her sons.

SHRINKING OF CORN.

The Genesee Farmer says, that a bushel of shelled corn will shrink from the time it is usually harvested till thoroughly dry, about 22 per cent. in bulk. Hence in statements of large crops, you must usually discount about one-fifth.

For the Southern Agriculturist.

SWAMP TUFTS AS A MANURE.

Mr. Editor:—In your last number, you give us a valuable article extracted from the Boston Cultivator, on the use of swamp tufts as a manure. This article is peculiarly interesting to the planters of South-Carolina, and I respectfully suggest the propriety of your republishing it occasionally for their benefit, that as many as possible may have opportunities of seeing and reflecting on the benefits from swamp mud applied to their exhausted high lands. All know that the Sea-Islands have been renovated, by the application of marsh-mud to their light sandy soils, and our marshes are but swamps bordering on salt-water, which does not permit the growth of tress.

South-Carolina is more uniformly a level country than most of the other States, and more frequently intersected by water-courses, creeks, branches, swamps and bays, than most of them. Our soil is light, sandy, and soon worn out, requiring to be laid aside and new fields to be cleared, all of which clearings reduce the original value of the land. Instead of cutting down and destroying the woods, a planter would improve the value of his plantation yearly, with less labor, by digging out the boggy soil from the adjoining low lands, and when the mud has been exposed a few weeks to dry, then spread it over the field that it might crumble and intermix with the soil.

All admit that the low lands when they can be properly drained, are much more productive than the high, because they are composed of decaying vegetable matters intermixed with clay. A large portion of these decaying matters, are washed down from the high land into the low, and we recommend that they be carried back with great additions, to renovate and improve the highlands. Not only to improve the produce of your fields, but increase the actual value of your whole tract, for the benefit of your children, instead of sending them westwardly where you may never see them again.

There is scarcely a field in all the low and middle country of South-Carolina which is not intersected or bordered by low grounds, which would afford an abundance of such swamp-mud or turf, composed in a great measure of decayed and decaying vegetable substances admirably adapted to the manuring of such soils. Provi-

dence has been bountiful to us beyond measure, in thus distributing over the surface of our lands, the means of promoting its fertility. Let us embrace the opportunities afforded to us, and not wander off to the west, where the lands are as readily exhausted as those of South-Carolina.

Vegetable matter is indispensably necessary to promote the growth of vegetables. Animal and mineral and chemical manures, stimulate the plants to absorb more of this vegetable food from the earth, and if it is not occasionally renewed, the fields become exhausted, and exhausted the sooner because of this stimulating influence. The animal manures from stables and pens contain a large proportion of vegetable matters, and are therefore invariably useful. But they are much more useful and *much more durable* as manures, when a large addition is made to them by collecting pine-trash, leaves, marsh, marsh-mud, and swamp soil, to their stimulating influence.

Lime, marl, plaster of Paris, (gypsum,) are highly valuable in addition to vegetable matters, but without such addition the land must be left to rest, that is, to recover its grass, roots, and other vegetation, or have the means of obtaining them afforded, by sowing the field with peas, beans, oats, clover, &c. What is fallowing but turning in the noxious weeds, and giving the field rest, that wholesome vegetable matters may be reproduced as food for the next crop.

D.

From [Skinner's] Farmer's Library.

CHARACTER, HABITS, AND MANAGEMENT OF SOUTHERN PLANTERS.

In other places, and under various guises, have been already published some of the scattering fruits of personal observation among, and of correspondence established with intelligent land-proprietors and others, in the South and South-West, while on a jaunt in early spring as far south as Charleston, Savannah, Milledgeville, Macon, Columbus, Montgomery, Mobile, and so on to New-Orleans, and along "the coast" to Natchez: returning thence by the way of Augusta and Columbia, to "the place of starting."

It is reported of Talleyrand, that on being chided by a lady for passing without recognizing her, he at once replied—"Ah! madam, if I had stopped to look at you, I never could have passed!" Now we recommend to all men of taste and sensibility, who have any

inkling for good company and good cheer, and who have any claim to the hospitalities to which we had so little, if they would make progress on their journey, not to halt at the charming places we have mentioned—charming emphatically at that season of the year, for a Northern man, when in his own region "grim-visaged winter" is wont to "linger in the lap of spring"—while there, impatient of delay, he decks himself in flowers and sallies forth even in February to dance upon the green and bask in the genial sunshine.

Two months have passed this day (June 3d,) since, at the sumptuous table of a friend in Mobile, supplied and served in the good old Virginia style, we met that great luxury of the garden, strawberries, which have just now made their appearance in like abundance in New-York. The spendid Cherokee rose-vine was already growing over the tops of the locust trees.

But our purpose is to note what we could see or hear of, touching the *great staples* of Southern Agriculture, and here we may as well at once remark, that on few subjects does there exist so much delusion in the North, as in reference to the habits and character and management of the Southern Planter. We do not propose at this time to go into any extended remarks on these points, because as yet we are not fully prepared with our facts; but let them who would form a judgment go and see for himself, and converse with them as we did in the social and public circle, and if we are not egregiously deceived, he must admit that they are nowhere to be excelled for that enlarged knowledge of the true principles of good husbandry, which has been gained not alone from books, but yet more from eager and sagacious inquiry and conversational intercourse, and from that best of all books, experience, in the resolute and skillful and industrious, yes, eminently industrious, management of their own estates, whatever may be thought or said to the contrary.

Let the amateur or the connoisseur who would enjoy that most beautiful of all prospects, large estates well and neatly managed, go and take a look at the rice plantations in Georgia, and the cotton plantations of South-Carolina and farther south—such for instance, as Col. Singleton's estates, wide in extent, and yet so much wider in renown for beauty and excellence of appearance and management under his own direction—or at the estates of Col. Hampton near Columbia, where one may, with one *coup d'œil*, look over some 1500 acres in a single field, and that the very first in which cotton was planted as a field crop; so level and clean that a large black snake, or "*horse-runner*," might be seen crawling over any part of it; and yet so carefully and judiciously *drained* as to bear upon its surface not a quart of stagnant water. Ditches without a clod to obstruct the flow of water or a bush to disfigure their borders, and throughout the whole estate of several thousand acres, roads as well constructed and in as perfect order as if they had been just handed over as finished work from the hands of a corps of Uncle Sam's engineers. It is here worthy of being noted, for example's sake,

that on these estates the clearing out and repairs of roads and ditches constitute a part of what is called the "task" for the slaves, which is really a light one as compared with the customary hours of field labor in Europe. In this way roads and ditches and fences are all kept in order with as much punctuality as the adjacent cultivated fields. It is in view of such management and perfection of work that every one must be struck with the superior results of labor fully fed clothed, and skillfully directed; showing by comparison, the efficiency of well trained regulars over volunteers and raw militia, as would probably be illustrated by any calculation which should exhibit a fair account of profit and loss. We are relating facts, not discussing principles.

From the American Quarterly Journal.

THE DAIRY.

Most of the cheese of this country is made by guess, and yet much excellent cheese is made. Still proportions may be determined which shall not only increase the product, but improve the quality. Every one who opens a book on chemistry, learns that every kind of compound matter is made up of elements combined in certain definite proportions. Every substance in the mineral kingdom and every manufactured material in the arts, which has homogeneity must be composed of certain elements united in exact proportions. So cheese being a homogeneous compound, its elements must be as exact in kind and proportion, as water, marble, or any other natural production. The natural productions however, differ among themselves in certain particulars, which it is important we should briefly notice. Some are fixed and stable and may remain the identical thing forever; while others, not less definite and fixed in their elements, undergo changes and become in a short time, things entirely different in kind and in proportion from what they originally were. Bodies derived from organic matters, are the most liable to undergo these changes, and hence it is a great desideratum to discover by what means they may be fixed and preserved in the state and condition we wish.

A cheese for instance may be formed of proper materials, and yet if placed in certain circumstances will undergo those changes which will entirely destroy it. In cheese making there are two great objects to be studied; first, how to make it, and second, how to preserve it.

1. *How to make cheese.* The preliminary points to be attended to are, to secure quiet cows whose milk is easily obtained. It should be milked into clean pails and strained as soon after milking as possible, through a strainer covering the tub, and properly supported on a ladder. In small dairies where only one cheese is made per day, of from 30 to 35 pounds, the milk remains over

night in the tub, and the cream which rises in the night, is skimmed for butter. The morning's milk is afterwards added. The milk being procured it ought to be immediately set for the cheese. The first step in the process is to bring the whole to the temperature of 85° Far. If it is raised to 90, the cheese may be too hard. If, however, it is designed for distant markets, it will be safer to raise it to 88, or perhaps even to 90. In June, July and August, if the morning's milk is strained into the night's milk without much delay, the temperature will be very nearly right; but usually from 10 to 20 quarts of milk, sufficient to make a cheese between 28 and 50 pounds, must be warmed over coals, or what is better with a water bath sufficiently to raise the temperature of the whole to 85°. The proper temperature to which this part must be raised, may be determined by calculation on the principle that two liquids in equal quantities, and of the same kind though of different temperature, if mixed will produce a mean of the two. Ninety-eight degrees is blood heat, and hence when the liquid is 85 it will still feel cool. The dairyman ought to be cautious and not suffer a blaze to pass up around the kettle, as it may impart a bad taste to the milk in consequence of burning it.

After the temperature is obtained, the next step is to add the rennet, and it is still a desideratum in cheese making to determine how much of this substance is required for any given amount of milk. Unfortunately there is a diversity of practice prevailing, and this part of the process is left to the judgment of the maker. A piece of rennet one inch square, infused in a wine glass of water will fetch 35 lbs. of curd. This is not, however, the mode usually adopted. The following mode of preparing rennet is commonly adopted in Berkshire, Mass. Saturate two gallons of boiling water with good salt, let it stand, cool and settle, and pour off the clear and infuse two rennets for two or three weeks, when it is fit for use. Of this liquid two table spoonsful will bring 35 lbs. of curd. When added it required very thorough stirring in order to secure a perfect and speedy mixture, that the rennet solution may act upon the whole of the milk at once. It must now stand and remain entirely undisturbed until the curd has sufficient consistence to be cut. When this consistence is sufficient, the knife passes through with some resistance, and leaves the curd distinctly divided and shewing the whey between the cuts. It is cut by traverse strokes into squares of 2 and 2½ inches across. It must remain still longer, to allow the perfect separation of the whey, during which the curd continues to contract and grow firm. When pieces can be lifted up without breaking, a strainer is pressed down upon the curd, and the whey rises up; a pail full may be dipped into a brass kettle and heated to about blood heat, or perhaps to 100°, when it may be poured over the whole curd. This causes a still firmer curd. If it is slightly brittle, the whey may soon be dipped off preparatory to salting. The quantity of salt is about a tea-cup full for 15 lbs. of

curd, or, to be more exact, one pound of salt for sixty pounds of cheese, after it is cured. This is the Herkimer county rule—though some diversity of practice exists in the best dairy districts. In England (in Gloucester) the salt is not mixed with the curd, but put upon the outside, and about 3½ lbs. are used to 100 lbs. of cheese.

In our dairy districts the curd is salted and then broken fine in the hands after the greater part of the whey is dipped out. This practice is objectionable, as the squeezing to which the curd is necessarily subjected removes a portion of the cream, and hence it would be better to tear it to pieces by some machine than subject it to pressure in the hands. When the curd is broken fine it is then placed upon the strainer, where the whey is suffered to drain out; it is afterwards gathered up, surrounded with the cloth, and placed in the hoop for pressing, when it is necessary to attend to the evenness of the press, and the cheese may possess a uniformity of thickness. The time which a cheese ought to remain in the press varies with the size. One which will weigh 35 lbs. should remain two days; one of 60, three days; and one of 100, four or five days.

It requires turning twice a day, morning and evening, at which time the cloth should be renewed. Care should be taken in removing it to preserve the surface of the cheese entire. The cheese being taken from the prees is far from being finished. It requires to be turned daily, and rubbed over with melted butter, in which a small quantity of annatto has been dissolved. The whole is put on by a soft cloth, by carefully going over the whole cheese. If too much butter is used, the cheese does not cure so fast. What is required is to fill up inequalities, free the surface from insipient mouldiness, and procure a smooth surface. The cheese room should have a temperature of 55° or 60°, and be kept perfectly clean, and dry as possible. It is necessary to keep it dark, on account of flies, but a free circulation of air is always important. Where cheese have not been pressed sufficiently, or where the curd has been scalded too much, holes are common, and whey leaks out; in such a case it is difficult to prevent the fly from depositing its eggs. When skippers are found they must be cut out and removed, and the vacant place filled with a mixture of fine lime and butter or tallow, and the place well coated over with the usual dressing. In warm sultry weather the dairyman must attend to his cheese room incessantly; a neglect of one day might spoil or injure several hundred weight of cheese. The business is laborious, and is better suited for men than women.

The secret in making rich cheese depends upon the success in preserving in mixture with the curd the cream, for the cream of the milk is not coagulated by the rennet, and hence more or less of it runs out with the whey and is lost. When this is the case the cream will be found upon the whey, and may be skimmed off and made into butter and used for dressing the cheese. It is more oily

than butter made from common cream, and hence is better adapted to this use than common butter.

When rennet is added to cream it thickens it slightly, and the small quantity of milk which is necessarily mixed with it appears in small coagulated granules. By standing, the thinner parts separate, but no farther change takes place in the cream than what is observed on the instant that the rennet is added, which amounts only to a slight thickening. Now the cream which rises upon the milk during the night, when both morning and evening milkings are mixed for the cheese, ought to be skimmed off. It would be no saving to the cheese to let it remain; it would, most of it, flow out with the whey, and we believe that it is only the cream which remains in the milk which goes into the cheese. Hence it would be of no use to add cream to the milk, notwithstanding the fact that it is estimated that one pound of cream will make two or two and a half pounds of cheese; the true quantity being proportioned to the care with which the curd is broken for the press; and we may add here that in working it, it should be cut first with great care, making even cuts without tearing; and that it should not be cut till it has firmness enough to keep itself in sharp square pieces into which it is divided; it being understood that the cream is retained mechanically merely in the coagulated mass, hence, in a certain stage, the rich matter might be squeezed out entirely, for the tendency of casein, or cheese, is to come together by itself, to the exclusion of the other proximate principle the butter.

We have dwelt now upon some of the essential points in cheese making at considerable length, with the hope of benefiting some of our readers, who may be in the midst of their harvest. Cheese are cured by drying. To secure it from injury during this process it is indispensable it should have been pressed, so as to expel the whey; otherwise, it will remain in a leaking state, with a moisture inside, which will prevent its drying; and what is more impart to it a tendency to decomposition. Large cheese, even if pressed properly, consume a long time in drying, and are extremely liable to undergo decomposition in the centre; hence cheese, it seems to us, are full large enough when they weigh 60 to 65 pounds, and for small families still better at 30 pounds. They ought to stand on clean dry shelves, in an airy room, with a current of dry air passing through it. Daily turning and dressing is indispensable, until near the close of the season.

We will sum up, in conclusion, with the following important hints:

1. Rooms for cheese should be cool, dry, and perfectly clean: temperature not over 60°.

2. Milk to be strained immediately after milking.

3. Milk should be set at 85° of Far., and the less scalding of curd the better; it will affect the rich part, the butter or cream, and make the cheese puffy, or else too hard and tough.

4. Cows should never be driven home by dogs for milking or they should not be worried and run by dogs or unruly boys: they should be milked as soon as possible after they are yarded.

5. Cows should not be fed upon rank grass; fine herbage or coarse herbage will do, so far as the flavor of cheese is concerned. Hilly pastures, with running water, are better than meadows for the dairy; and much as farmers hate the white daisy of such pastures, it is good for cheese, as we know from observation and the experience of our early days.

6. Let not the dairyman be very anxious about Durham cows. Our native breed will make as much cheese, and as good as the Durhams taken together. Good cheese does not depend at all upon the breed.

From Hovey's Magazine of Horticulture for Sept.

A REVIEW OF MR. LONGWORTH'S PAMPHLET ON THE CHARACTER AND HABITS OF THE STRAWBERRY PLANT.

This pamphlet was sent to us by Mr. Longworth early in the season, immediately on its publication. We should have noticed it at the time, but, as we were desirous, after the various articles which have appeared in our magazine during the last three years, to arrive at some satisfactory conclusion upon this vexed question, we laid it aside in order to have the experience of the present season. We shall endeavor now to fully discuss the matter, and if we differ in many points from Mr. Longworth, we hope our results will be satisfactory, and of some practical value to all cultivators.

Mr. Longworth has combated the subject with great earnestness, and, if he obtains no other credit, he certainly can claim the merit of having drawn attention to the question, and of seeing his views *practically* confirmed. We say practically, for although our opinion has changed, as facts have presented themselves, we have for two years always advised the planting of perfect and imperfect blooming kinds in near proximity, in order to insure abundant crops. To give Mr. Longworth's views as summed up in his pamphlet, we quote the following:—

"I regret that the Committee on the character of the strawberry plant have not yet been able to make up an unanimous report. It arises from a failure of the crop with some members of the committee, and from a conviction with our European gardeners, that all varieties were perfect in both organs in Europe; and they are slow to believe the contrary. This I am positive is not the fact in England. In some soils and some climates, and in favorable seasons, such staminate plants as are partially perfect in the female organs,

yield a larger crop than usual; but can never be made to bear a full crop. But in raising from seed, fully one-half will in general be staminate plants, and not one in fifty of them bear even a single fruit. Those that do bear produce many defective berries. I do not believe that any soil, climate or season can make the pistillate plant bear singly; and it is the only one worthy of cultivation for a crop. Of this, and of the staminate and pistillate character of the plant in England, we have positive evidence from their great horticulturist, Keen himself. In the year 1809, (if my memory serves me as to date,) Keen discovered that a new seedling of his planted by itself, did not swell the fruit. On a careful examination of the blossom, it struck him that it might be owing to a defect in the male organs. He then placed some staminate blossoms in a phial of water, and suspended them in the bed. He found the fruit in the vicinity to swell immediately, and he placed more phials of staminate blossoms in different parts of the bed, and had a fine crop. His letter will be found in the Transactions of the London Horticultural Society for that year. What was true in 1809, will be found still to be true. I have further evidence of the character of the plant in England. Fifteen years since, I imported several varieties of strawberries from London, and among them I had both staminate and pistillate plants, but not one variety in which both organs were perfect in all the blossoms. The staminate varieties bore from one-tenth to one-third of a crop. Under the name of Keen's seedling, I got a pistillate plant, that impregnated, produces abundantly, and the fruit is large and fine. By themselves, an acre would not produce a perfect berry. It is not what in England is generally known by the name of Keen's seedling.—Mr. Keen raised many varieties. The true Keen is a staminate plant, and is more perfect in both organs than is usual, and produces a partial crop of large fruit. I incline to the belief, that for market, their gardeners cultivate the same seedling of his as the one sent me, and probably the same kind he impregnated by hand. It is truly a valuable kind, and worth twenty of the staminate seedlings. The staminate Keen is cultivated for forcing, and as the object is large fruit, all the blossoms are picked off, except three or four that set first.

"But it will be asked, if true, why is not this known to botanists, and to all our nurserymen who raise the plant for sale. The reasons are obvious. The strawberry belongs to a class of plants that have both the male and female organs in the same blossom. In all the white varieties I have seen, and in the Alpines, both organs are always perfect in the same blossom. Both organs existing in all other varieties, though not both perfect in all the blossoms, the attention of botanists is not directed to it, or, where noticed, is supposed to be an accidental defect. In all the other species and varieties I have seen, both wild and cultivated, I have met with one only where the defect in the one organ or the other was not apparent, and in that the fruit was very small. I have never seen a pistillate

plant, (one in which the female organs predominate,) that would by itself produce any perfect fruit. Staminate plants (those in which the male organs predominate) where partially productive, generally produce the sweetest and most highly flavored fruit. In certain soils and certain seasons, Keen's seedling, Wilmot's, the Iowa, and some other staminate varieties, will produce half a crop.

"Where our hortitulturists raise from seed, all the staminate plants that are entirely barren, are of course thrown away, and the few staminates that produce a partial crop of large fruit, retained. A pistillate plant, that, mixed with others, bears a full crop of large berries, is transplanted as a treasure into a bed by itself, for increase. The gardener is the next season surprised to find it wholly barren, and, after one or two trials, throws it away.

"The nurseryman, within a space of 100 feet square, cultivates twenty or more varieties, and a large portion of them are always staminate, and impregnate the pistillate varieties. Fruit not being their object, their attention is not directed to their bearing, and the failure of a full crop in any variety is attributed to frost, or accident, or its being a bad bearer. Of this, we have a strong instance in Hovey's seedling. It is eleven years since he raised this plant; he has increased it extensively for sale. Six years since, I made known the defect in the male organs of the plant, and drew his attention to it; and asserted that an acre of them separated from all others would not produce a perfect berry. Till 1842, he continued to contend, and was positive that his plant was perfect in both organs. In 1842, he admitted, in his Magazine, its defect in the male organs. In 1844, he went back to his old doctrine, as will be seen by his Magazine; and it was not till the August No. of his Magazine of the present year, that his mind was again mystified on the subject. How are the mere *workies* to gain information, when the editor of a Horticultural Magazine, and a nurseryman, who undertakes to enlighten others, has not, in eleven years, ascertained the character of his own seedling? I am the less surprised at this, and acquit Mr. Hovey of blame, as Mr. Downing, in a recent letter assures me, that last season, he raised a fine crop of Hovey's seedlings, on a bed far separated from all others; and for a still stronger reason—that even the London Horticultural Society holds the same doctrine. But the question is now under investigation, and light is thrown on it yearly by cultivators, and even the London Horticultural Society will soon acknowledge their error; but not till Mr. Hovey has satisfied his own mind, when he will doubtless draw public attention to it. Yet Mr. Hovey, in his August No. of the present year, states, a person had cultivated an acre of his seedlings, where they were mixed with staminate plants, and raised two thousand quarts, and that his new seedling is valuable for impregnating his old one. Here is a tacit admission, that his old seedling is defective in the male organs. The yield was not a large one. Mr. Jackson raised at the rate of five thousand quarts to the acre, near Cincinnati, as he

informed the public in a late publication. Mr. Downing, I am positive, had not Hovey's seedling unmixed with others.

"To keep varieties separate is next to an impossibility, and the more so, as new ones are often produced in the bed from chance seed. I was absent from home two months this summer, and left it in charge with my gardener to watch the beds, and keep down runners. On my return, I found the pistillate beds had become mixed, and the staminate Iowa had run on the adjoining pistillate beds, on each side, a distance of nine feet. But though Mr. Hovey appears to admit that his old seedling requires staminate plants near, on the same page, he remarks, "It is time and labor thrown away to cultivate sterile plants, as has been recommended by some individuals, when varieties *usually productive*, and of *large size*, can be planted out for that purpose." He here of course refers to his own seedlings. To put this question at rest I make the following proposition —He shall send a plant of each of his seedlings to Mr. Wilder of Boston, and Mr. Jackson of this city (Cincinnati;) and if, after a fair trial, they report them "usually productive," I will present the Massachusetts Horticultural Society with $500. I will do this, if they report them as producing as large a crop as the old seedling will do, where one-tenth of the ground is lost, by barren plants being inserted. I will go further. If they report his old seedling as producing half a crop of perfect fruit, I will do the same thing. If they report the contrary, he must present the like sum to the Cincinnati Horticultural Society.

"Mr. Hovey now states, that among all the species and varieties of strawberries there are only four worthy of cultivation—the Virginia Scarlet, Alpine, his old seedling, and a new seedling of his, which he calls the Boston; and, though raised in 1834, he has never before discovered its fine qualities. This he pronounces "perfect in both organs, a great bearer, and fine fruit; and also suitable to *impregnate his old seedling*." He is here wide of the mark. The Scarlet is an old native fruit of Virginia, and its greatest merit is its early maturity. The fruit is of good quality, but not large. The Alpine was introduced into Cincinnati fifty years since from the Alpine mountains, by Govenor Sargeant. It is deemed of little value. The flavor is not good. Its size is small, and it is only cultivated in a few of our gardens as a curiosity, and not a quart of them is ever found in our markets. What will English cultivators, who have raised so many new seedlings, say to this? What will they think of their wisdom, in having enriched some of their horticulturists, by paying high for new varieties? By the time Mr. Hovey has cultivated his new seedling eleven years more, he will discover that it has not one-tenth the value of his old seedling, and its only value to impregnate it; and, for that purpose, we now have as good bearers, as fine flavored, and larger fruited seedlings. His old seedling stands unrivalled with us for size, where impregnated. But we have other varieties, that are as good bearers, of nearly equal size, and of finer flavor. But I would highly recommend his

old seedling to all cultivators, whether for family use, or for sale. His new seedling, I have not seen. The new doctrine of Mr. Downing, "that all plants in their natural state are perfect in both organs, and staminate and pistillate ones, chance monsters produced by high cultivation," surprises me, for he deservedly stands high as a horticulturist. In a late number of the American Agriculturist, I discover Wm. R. Prince disputes his theory, and contends for the true character of the plant. Mr. Prince is an experienced horticulturist, and the discussion will call out other experenced gardeners; and I hope, in a few years, to see strawberries in as great abundance, and sold as cheap, in the Eastern cities, as our our own. The plant, be it staminate or pistillate, never changes its character in running." pp. 11, 14.

The substance of these remarks has already appeared in our pages in Mr. Longworth's communications upon the strawberry, and commented upon by us at various times. They have also been ably discussed by our correspondents in the last four volumes. We shall, therefore, only correct Mr. Longworth in some of his statements, and sum up the whole in three questions, viz:—

1st. Are there male and female plants?

2nd. Can what are termed (erroneously) pistillate plants, be made what are termed (erroneously) staminate? and

3d. Are perfect flowering plants necessary to fertilize imperfect flowering ones?

Mr. Longworth's remarks abound in so many errors and inconsistencies that we shall scarcely expect to notice all. In the first place, he states, that Mr. Keen discovered the evidence of the male and female flowers in 1809, in a bed of his "*new seedling*." Our correspondent, Mr. James, has shown, that this experiment was with the common Hautbois and not with any seedling of Mr. Keen! In the next place, he asserts that we have denied that our seedling had defective blossoms: we should be pleased to have him point out the time: we did assert that it was owing much to cultivation whether they were defective or not, from reasons which we have before given, which we would commend to the notice of our readers; for, although we have changed our views, from more recent experiments in regard to the necessity of perfectly developed blossoms to impregnate imperfect ones, those remarks form the groundwork of our opinion in regard to the true nature of the strawberry blossom.

Another gross assertion Mr. Longworth makes in regard to our new seedling, the Boston pine. He states that "although raised in 1834, we have never before discovered its fine qualities." We never made any such remark; the words are his own coining. Not only did we discover its qualities at the same time of Hovey's seedling, in common with five or six others; but we have devoted time and patience ever since that time, to the selection of the best of of these, all of which were finer than two-thirds of the commonly

cultivated kinds, till at last we were assured the Boston Pine had no superior in all its qualities combined.

It is *five years* since the fruit was *first exhibited*, but we were not desirous to dispose of the plants till the autumn of 1845. His statement about the wood strawberry is equally incorrect. We now take up the questions we have proposed.

1st. *Are there male and female strawberry plants?*

We say without hesitation,—no,—so far as the strawberry has yet been seen. It is necessary, in discussing subjects of this nature, that we call things by their right names. There are *perfect* and *imperfect* flowering kinds; the committee of the Cincinnati Horticultural Society, chosen to look into this matter, admit, that a "critical examination of the flowers will disclose the stamens, few in number, and so imperfect in anthers and pollen, that they appear incapable of fertilizing the stigmas." On this head, Mr. Thomas has made some sensible remarks in the *Cultivator*, which fully coincide with our views. He has accompanied his remarks with engravings, in which the stamens are shown, but so few and short as to be deficient for impregnating the pistils, and he also states that they "are evidently imperfect and *flattened*, partaking thus, in a slight degree, the character of the petals of a double flower;" and further, that after many careful observations of Hovey's seedling with a compound achromatic microscope, on "some of the anthers, no pollen was obtained; they, however, usually afforded a small quantity; and their fertilizing power appears to be slowly developed as they burst and discharge the minute portions they contain in most cases, about the time or after the petals open." This is the true character of our seedling, and all the large kinds usually denominated pistillate. Can any further facts be required to establish the correct name of the blossoms? If so, we stand ready to become convinced when they are equally as well substantiated.

2d. *Can what are termed (erroneously) pistillate plants be made what are termed (erroneously) staminate ones?*

Again, we answer—no. The instance has never yet been shown, notwithstanding the luminous views of Mr. Downing and his offer to make them to order. Our seedling has an imperfect flower, and no cultivation, or "allowing it to exhaust itself by overbearing," will produce that result. Every cultivator who has found *staminate* flowers, so called, in his beds of Hovey's seedling has found either accidental seedlings (as we have often done, and recorded the fact,) or other varieties. If strawberries are allowed to decay on the vines, seedlings will be seen to spring up if the beds are not disturbed. A large majority of the Cincinnati committee state that plants "never change their character." This question we therefore consider as satisfactorily settled, without discussing Mr. Longworth's conflicting views, about "male and female Keen's," "male and female Hudson's," &c.

3d. *Are perfect flowering plants necessary to fertilize the imperfect flowering ones?*

Here we say unreservedly,—yes. Without them a good crop *can never be produced;* and this we have advised for upwards of *two years*, after testing the fact. Out of the great number of English strawberries which have been introduced, only five or six have been found with imperfect flowers: that which will afford the best example is the Methven scarlet. It is not very surprising, then, that English cultivators should say but little on the subject, as the Methven was so inferior a variety that it soon went out of cultivation. Our strawberry was, we believe, the first seedling raised in this country, notwithstanding so many have been produced since; and it has been a source of great satisfaction to know that our example has produced such good results. Its immense size and excellence induced many cultivators to root out all other sorts, and cultivate this alone, justly thinking it useless to grow inferier ones: their haste, however, ended in disappointment. In the place of the abundant crop anticipated, in many instances the beds were entirely barren, and the variety was at once condemned. Hence arose the controversy on this subject; but we have at last, by the repeated discussion of the subject, arrived at certain results. No longer need there be any doubt. We repeat, as the one essential thing to produce Hovey's seedling, in its fullest abundance and excellence, the *planting of perfect flowering kinds in near proximity, say within six, ten or twelve feet, and for extensive cultivation, alternate beds, in the proportion of three or four rows of the latter to ten or twelve of the former.* The best sorts which we have found for this purpose are the Early Virginia or Old Scarlet, and the Boston Pine, the latter having the largest flowers and the strongest stamens, with a profusion of pollen.

We have extended our remarks beyond the limits of a Review: but the importance of the subject, and the hope that further discussion will be unnecessary, have induced us to give our views at length.

From [Skinner's] Farmer's Library.

CATTLE TRADE.

The curious fact in *swineology* is affirmed by a Kentucky drover, that his hogs which weighed one hundred and fifty at starting reached an average of one hundred and eighty on arriving at New-York —being nearly half a pound a day while on the journey. On the other hand, the loss of weight—or "drift," as it is called—of cattle is equal to one hundred and fifty pounds, which a bullock of one thousand pounds weight at leaving home lessens on his way to the Atlantic butcher. This drift, or loss, it is observed, is chiefly first in the kidney-fat and fat of the entrails. It has been ascertained that a hog will set out on his journey to that bourne whence no *such* traveller returns, so fat as to have no cavity or vacuum in his corporation. If, as he journeys on, you don't feed him, he lives first upon and consumes his gut fat, then his kidney fat, and lastly, his carcass wastes away.

In driving cattle, the practice is to stop (but not to feed) for an hour at mid-day, when the cattle in less than five minutes all lie down to rest.

A drove of one hundred and twenty cattle, as easily driven as a smaller number, is usually attended by a "manager" on horseback and two footmen. One footman goes ahead, leading an ox the whole way, say eight hundred miles. The manager on horseback takes his station behind the first forty head, and the third man on foot brings up the rear. There are stations along the whole route —country taverns, often kept by the owner of the adjoining farm, who thus finds a market for his own produce, and keeps at any rate, a constant supply of what is needed for the drover. Wending their way through Ohio, the farmer supplies them with that glorious plant, the pride of our country, Indian corn, as they have feasted on it at home, stalk, blade, and grain altogether; but, when on their melancholy journey they touch the line of Pennsylvania, Mynheer brings forth his fragrant hay and corn already shucked, and finally, when they come late enough to market, they are turned at night into grass lots, prepared and kept for the purpose.

The cattle reared in the corn regions of the West, especially in Ohio and Kentucky, have been heavily dashed with the short horn blood, by which their average weight has been increased, it is said, about 200 lbs., with great improvement in their fattening properties and the quality of the meat.

A Kentucky farmer would now be very loth to let a bull of the much vaunted old Bakewell breed, with his straight back and long horns and fat all to itself overlaying the carcass, come within a ten foot pole of his herd of cows. Cattle with a strong infusion of the improved short horn blood, as by the late celebrated grazier Steenbergen, are still esteemed to be preferable to the full-blood, as being more thirfty and active.

For obvious reasons, cattle are not so much transported on railroads in this country as in England, where the distances from the feeding place to the market are so much shorter. Cattle will go very well on a railroad for twelve hours together, but then they must lie down, which they cannot do in the cars like a hog, that lets himself down and sleeps on the space upon which he stands. The charge too, on the railroad in our country is too high. For lame bullocks that are sometimes sent from Harrisburg to the Philadelphia market, they charge half as much as it costs to drive them all the way—seven hundred and fifty or eight hundred miles from Kentucky to New-York—the one being $8, the other estimated at about $16.

The last of the western cattle arrive in New-York about the 1st of August, when they are driven out of the market by the grass-fed herds of more neighboring regions. The cost of road expenses of a drove of one hundred head from Kentucky is about $1,500. Some of the latter droves come in on grass at a less expense; but, as before intimated, the decline or "drift" is greater than when fed on hay and corn, and the beef not so good.

Communicated for the Southern Agriculturist.

REPORT ON THE PRRSERVATION OF THE SWEET POTATO.

To the Agricultural Society of South-Carolina:

The Committee appointed at your last meeting on the preservation of the Carolina Sweet Potato,

REPORT:

That they have given the subject due consideration, and suggest that potatoes should be gathered in on the first approach of frost; that they should be banked on as high and dry a situation as can be found—after excluding all the cut and bruised ones—in heaps of twenty or thirty bushels, placing them carefully around a pole (from two to three inches in diameter,) slightly stuck into the ground, (the small end down) without pine-trash or corn-stalks at the bottom. Place straight corn-stalks closely around the pile of the full length (to reach from the ground to the top,) four or five courses thick, bank up with earth three or four inches thick, draw out the pole and cover the opening left by the pole with a piece of board or bark, and so leave it several days, then stuff into the opening a wisp of pine straw and cover with earth, and pat the whole bank smooth with a spade: should the weather become cold before the bank has been closed in, then place a bunch of straw on the top. If the pole be a dry one, it may remain in the bank, after being sawed off level with the top of the same. A tube formed with laths two to three inches in diameter, and auger holes bored in each side, to remain in the bank, would be preferable, as no sinking of the pile could take place; the top of the tube must be sawed off even with the potatoes, and a piece of shingle laid over and covered with earth after the vapour has passed off.*

If cellars are made use of, they should not have air holes, but be made as close as possible. An open lath door should be used in mild weather for two or three weeks, as the steam or vapour from a large mass will require a longer time to pass off than from the banks; the reason given for excluding flues or chimneys in cellars, is, that the heated air passing off, coming in contact with the cold external atmosphere, condenses and trickles down under the openings, and indeed moistens the whole surface. Cellars should be filled if possi-

* Potato banks are usually put up without attention to the particularity stated above, and the pole or flue can be dispensed with.

ble, that the bulk of roots may form an atmosphere of its own; therefore commence piling as high as the house will permit, and if there be not enough to fill up the same, cover the exposed end with a thick coat of straw, after the evaporation passes off, which will also exclude the light which is supposed to operate injuriously—by stimulating them to sprout and rot.

Your Committee recommend that potatoes be dug in before frost has nipped the leaves, or as soon after as can be done, as many of them protrude through the earth, or lie near the surface, and although the injury done by frost is not perceptible to the eye in many instances, yet the vitality is destroyed, and they soon rot and impart their contagion around, which extends itself every day.

Another form of putting up potatoes is adopted by some planters the form of a rick, sometimes forty to fifty feet long, in which shape they have been well preserved, and much labor saved over that of putting up in hills.

Brick and also Pisé cellars are in use on some plantations, and are found to answer well.

Buildings constructed in the following manner, have been found to succeed well as potato houses: Place grooved posts in the ground, dropping in puncheons and claying closely up, then line the inside with clap boards and stuff the space up with pine straw, cover the roof with shingles (nailed,) and fill the loft with course fodder, shuck or straw, to keep off the cold air and absorb the moisture from the potatoes.

In all cellars or potato houses, bins or divisions, (constructed even roughly with puncheons) are useful to facilitate the stowing away of this crop without bruising. A ditch should be cut around the cellar and the door should face the south.

Your Committee further recommend that dry and moderate weather be chosen to gather in this crop, particularly avoiding a cold North-wester, and that they be housed before sun-set.

Potatoes generally keep best that grow in a dry soil, and those that have not arrived to their full growth, therefore it is recommended to use the largest first and to separate those grown in dry situations from those in low grounds, and to use up the latter first.

Were sills placed in a cellar and rough plank or puncheons laid over as a floor, and well covered with pine-straw; it is believed that this would be the most perfect mode of keeping, as the straw would

not be in contact with the moist earth, and therefore would keep dry and prevent the potatoes from being bruised by the pressure of a large bulk. Then if smoke is thrown into the cellar it would pervade the whole mass. Fires should be made of rotten wood, which will produce more smoke than heat; fires should be kept up night and morning for several weeks, and until the house is dry. The doors should not be kept open except in mild weather.

Prudent planters plant vines for seed in the month of August, that they may get in their seed on the approach of frost as the first commencement. It is asserted that potato slips are better and more productive when the vines are cut from the slip vines of the same year.

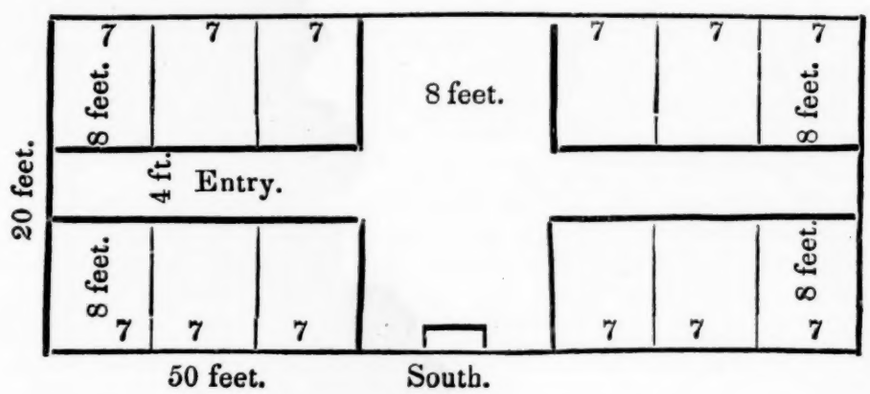
Your Committee recommend that the seed from the potato (which is ripening at this season) be gathered and experimented on in planting season; it is said that our potatoes have deteriorated in quality as well as quantity, contrasted with former years, and they may be resuscitated by this process. In like manner the Irish potato is restored in Europe every six or seven years. It is necessary to mark the blossoms with sticks, otherwise the seed cannot be found after the blossoms fall. In ten or twelve days after the blossom appears, the seed may be found dry enough to gather. Below is a diagram of the internal arrangement of a cellar of upright walls.

Respectfully submitted,

Jos. F. O'Hear.

Chairman.

Oct. 20th, 1846.



From the Southern Cultivator.

OVERSEERS.

Mr. Camak:—I read with much interest the articles in your paper, so judiciously selected, in reference to the various improvements in progress in the art of agriculture. But there are some views of deep moment to the *planting interest* of this section—the eastern part of Georgia and South-Carolina; which I have not seen exactly expressed, and which, with your permission, I will suggest to our planters.

Formerly, when lands were fresh and cotton high, planters had very little difficulty in getting along, and with the least industry and economy, accumulated property rapidly. A man had only to buy a plantation, put a bunch of hands on it, employ almost any one to oversee them, and he might go about his pleasure, hunt, horse-race, or go to Congress. Twenty cents a pound for cotton cured all defects in management, and kept the sheriff at bay; but six cents a pound for cotton is quite another thing. The profits of agriculture have now taken rank with those of other occupations, and it requires as thorough management in every particular for a planter to make lawful interest on his investment, as for a merchant, mechanic, manufacturer, lawyer or doctor to do so; a momentous fact of which very few of them seem to be at all convinced. Merchants, mechanics, lawyers, &c., require years of laborious training to fit them for their callings, and so long as they pursue them, indefatigable industry, the strictest personal attention, and consummate skill are indispensable to even reasonable success. If they are deficient in any of these particulars they fail at once. But any body thinks he can be a planter. In fact, Banks, whose officers scarcely know a plough from a hoe, and individuals of all classes, equally ignorant, boldly undertake to grow corn and cotton, and expect to do it profitably. A stripling of eighteen years of age who, it may be, has divided his time between the fox-chase and the plough, offers his services to conduct the business and is accepted. Such adventures not only ruin themselves, but by adding, though at a cost fatal to themselves, to the amount of the crop, injure the whole planting interest. My object, however, is not to denounce them, but to speak of more serious evils which beset the best informed and most judicious cultivators of the soil.

Small planters, who live on their plantations and manage themselves, even though not in the best manner in the world, may, with some comfort, accommodate themselves to the great change in the price of our staple. They can still provide their own hog and hominy, and afford to buy sugar, and coffee, and other little necessaries. When they are skillful and industrious, read agricultural papers and books, and keep up with the improvements of the age, they may make fair interest on their capital and accumulate by rigid economy, as those in other branches of business do. But

what is to become of our *large planters?* That is the question—important to them and vastly important to the country. In general, they cannot live on their plantations, because large plantations, even in healthy regions, and more or less unhealthy, and can rarely be obtained but in the more sickly parts of the country. Even when they can live within a few miles of their places and visit them every day, it is impossible for them to examine closely into every operation that is going on, to see every sick negro in due season, to watch over the health of those that are well, to see their stock and work animals attended to, their wagons and gear and plantation implements kept in proper order and preserved, to give daily, and as is sometimes required, hourly directions about the work to be performed, and to inspect it afterwards in due season to prevent the serious consequences of not having it done as it should be. If one were the most skillful, the most industrious planter in the world, and with a constitution of iron, he cannot, unless he lives right on the spot, attend to all these things, do the reading he must do to learn what he must learn of the progress of his art, and conduct the improvements necessary to enable him to produce as much and sell as cheap as those with whom he has to compete, and make just interest on his capital, if he works a force of 30, 50, or 100 hands. The obvious suggestion is, *let him get an overseer.* There is the rub. He must trust all these things to agents. Now, if he could get the best possible agents, he would at least have to pay them, and to this extent would be at a disadvantage in comparison with the small planter who employs none. And let it not be supposed it is a trifling one. Besides the money paid the overseer, his family, however large, is to be supported, his horse fed, with servants to wait on all. There are few overseers who do not consume wages and all the produce of 6 to 10 hands, thus absorbing at once 6 to 10 per cent. of the labor, when there are even 100 hands. Is this easily made up in these times, even when the overseer is a good manager and perfectly supplies the place of the owner? But where are such overseers to be found? Can they be picked up at grog shops, muster fields, and political barbecues, where the young men destined to be the planter's agents are trained to a sufficient opinion of their abilities, and especially to their vast privileges as "free, independent and equal citizens" of this republic, who are not to stoop to be any "man's man," or to do any man's business even when paid for it, unless allowed to do it after their own fashion?

If such overseers are to be obtained, I do not, for one, know where to look for them. If there are any young men reared among us, destitue of capital, but of industrious steady habits, and likely to make careful, intelligent, and energetic planters, they almost all of them seek the western country at an early age, where it is supposed there is a better field for enterprise. The few of that sort who remain, usually put so high an estimate on their services that they are unattainable, or, led by false notions of independence, seek

other employments. The melancholy fact is, that our region is nearly entirely destitute of even tolerably good overseers. And what is worse, they seem to be growing scarcer every year. In all other countries, agents in whose qualifications entire reliance may be placed, are abundant, seeking employment in every branch of business, treading on one another's heels and ever ready to fill a vacancy. In most occupations it is the case to some extent here. Young men are trained for clerkships, for superintendents in factories, as master workmen in all trades, to be junior partners in all professions. But no one is brought up to be an overseer. Very few will take that employment who can get any other. If, then, large planters are compelled to incur heavy expenses for managers, and if when attained, they, as is usually the case, prove to be his greatest trouble instead of his assistant, how, I ask, are they, at present prices, to sustain themselves? They cannot, for the most part, dispense with overseers, yet, with all that they can do, these agents mismanage, neglect and abuse their property, resist and thwart improvements, refuse to follow, or if they pretend to follow directions, do it in such a way as to insure failure. I ask the question, how are they to sustain themselves at present prices? It is one of the deepest moment; I wish some one would answer it—I cannot. Being one of that class of planters myself, and one who has *thus far* kept out of debt, I have come to the painful conclusion that, as things are, no one can plant largely in this region. If the price of cotton should rise—of which I see no hope, they may go on, otherwise they must sell out here and quit planting or go west. They cannot, having to incur the expense of managers, and with such managers as can be procured among us, compete with the cotton planters of the west, or with their neighbors at home, owning small places and able to look after business themselves. The class of *large planters* must by one means or another pass away from our section. In the long run it may be better for the country that our lands should be cut up into small farms, owned and cultivated by a race of sturdy yeomanry. But time must elapse before this change can be effected, and in the meanwhile the most painful individual suffering and the most serious losses to the community at large, must be endured.

It is melancholy to think of these things; and if all that I have said be true, it may be asked, why indicate evils for which no remedy is suggested, and anticipate inevitable sorrows? The question may be pertinent. But others may see remedies which I do not, and perhaps it is right and profitable also to state facts, deduce truths, and force reflection on them, however painful it may be.

AGRICOLA.

South-Carolina, June 1846.

Cutting food for Sheep.—Thomas Noble, in the Ohio Cultivator, says,—"My sheep consist of 1600 head, and so far, I have lost none. We cut all their feed, and the saving thereby is at least one-third."

From the Boston Cultivator.

IMPORTANCE OF ATTENTIVE BREEDING.

Messrs. Editors :—Seventeen years personal experience in sheep husbandry has proved to me that the character of a flock depends much upon the management, and although keeping has an important bearing upon our success, yet far more important are the results of our system of breeding. It has been my practice to keep sheep in a fair and uniform condition as possible throughot the year, with an occasional change of pastures and food, always avoiding the extremes—high and poor feed, as I consider either of them injurious to the value of the fleece. But let the keeping be what it may, a marked an important change can be produced by judicious selections this forms the only substantial basis for permanent and progressive improvement in all domestic animals. And owing to the quick growth of sheep, the facilities for multiplying numbers, there is no branch of stock raising where attentive breeding meets with a greater or more immediate reward.

I have known instances where flocks have sprung from the same source, but owing to different objects in view, different powers of discrimination, in a few years, those flocks once identical would bear only a distant resemblance to each other. The one has aimed to improve the fineness of the fleece, but in so doing, has impaired the constitution; with another it has been his object to increase the quantity, but has lost its original fineness, while a third may have united the merits of the two in a high degree without their faults; and I might add a fourth class, who are indifferent to any guide, breeding indiscriminately, consequently the flocks of such degenerate in all the most essential points. The most valuable breeding sheep are not those that have only one property of superior excellence, but a union of several and to make proper selections, we must first know what those are, then our progress will be proportionate to the skill and means employed in discovering and obtaining such as possess the desired qualities in the highest state of perfection, together with the power of imparting them to their offspring, which is the most sure test of purity of blood.

Constitution, quantity and quality of fleeces are the most valuable combination to guide us in our choice. Constitution is requisite for the preservation and perfection of the fleece and carcass, as well as for a healthy and productive progeny, quantity and quality should be combined, that the fleece may be one of profit to the wool grower and at the same time meet the approbation of the manufacturer, and thereby meet with a ready sale and a living income.

Many have the impression that wool to be fine must necessarily be light, and that which is heavy is consequently coarse; they suppose it not practicable to combine fine and heavy fleeces in the same flock; but such individual instances can be found in many flocks and competent skill and judgment, with sufficient opportu-

nities for selection, aided by a natural zeal and desire to improve, will in time produce in flocks what we see in individuals.

The most expeditious and economical means of improving our present flock is to select our choicest ewes and cross them with the best bucks that can be produced, and in a few years we can produce a flock strongly tinctured with their prominent characteristics. Of two bucks used in the same flock, the clips of their offspring may vary from 5 to 8 oz. per fleece, and still the one with the heavier fleece may preserve or improve the form and fineness of the wool. This should serve as a stimulant to bestow the greatest care in the choice of sires, so that they are well up to the standard, for fineness and weight of fleece, with a good form and constitution. Bear in mind that if they have their defects, we are as liable to propagate these as their merits, and in acquiring one good point we may sacrifice several equally important. Those who have never made an effort to improve their sheep by attentive breeding would find that a few years of judicious management, would effect a very perceptible and valuable change. The more imperfect their shape, the more rapid and greater the chance of improvement. Yet think not that after a few crosses only, our animals will be so improved that nothing more can be accomplished. To make improvements permanent, the effort must be constant. It requires continued watchfulness to preserve the present good traits a flock may possess, and much more so to eradicate bad ones and supply their places with those more desirable.

That you may the better judge of the success of my practice, of which the foregoing is a brief outline, I will give the statements of my last shearing, which bears the signatures of the shearers, testifying to the clean condition of the wool, accuracy of weighing, &c., it being personally weighed by them. Five breeding ewes averaged 6 lbs. 14 oz.; 31 breeding ewes 5 lbs. 14 oz.; 25 yearling ewes 4 lbs. 11 oz. These were selected previous to shearing, not with the view of obtaining abundance of fleece alone, but the best sheep, with good shape constitution, and an excellent quality of wool. Three stock bucks, viz: 2 year olds, Don Pedro, Jr., and Young Fortune, the one sheared 10 lbs. 11 oz., the other 9 lbs. 14 oz., 1 yearling (an April lamb) Black Hawk, 9 lbs. 14 oz. This buck is a pure descendant of Col. Humphrey's importation. The sire and dam were from the flock of Stephen Atwood, Litchfield Co., Ct. The stock of this buck for size, strength and beauty of form, surpass any thing I have ever owned. One hundred breeding ewes averaged 4 lbs. 12 oz., 148 yearlings, 4 lbs. 4 oz., entire flock of 402, 4 lbs. 1¼ oz. I have no wethers in my flock. Two hundred sheep have lambs by their side, 275 are one and two years old, 60 of which are yearling bucks, the remainder ewes; were there a proportionate number of wethers, and those that have come to maturity, the general average would be several ounces higher.

In the course I have pursued, I have been rewarded with a gradual improvement in both the abundance and texture of the fleece.

My sheep have been a source of profit and satisfaction, yet they do not so far meet the object of my wishes, but that with patient and persevering effort, I anticipate future progress. And although we have flocks that approximate well to perfection, yet in my opinion there are none but what a judicous application of means would show them to be susceptible of further improvement. As long as the country will afford animals superior to the general character of our flock, so long will our progress be onward. In relation to the pedigree of my stock I would state, that I keep a sheep and herd record, containing lineage, certificates and bills of sale, from which I can show my flock to be the pure product of the importation of Spanish Merino, in the years 1802, 9, 10 and 11.

The statements in regard to my own flock are not made as boasting of having "the best sheep in the world," but to show the effects of attentive breeding, in ordinary hands, and as an inducement to others to give greater attention to the improvement of their sheep. And though I consider my wool of the very best quality of Merino, yet there may be a few flocks of Saxony and Merino mixtures a shade finer, but for fineness of an equal weight and value of the fleece, I think they stand unrivalled in this vicinity. But I much rather one would see my sheep than to take my word for it, as we are liable to be partial to our own interest and think that what we have is about right. A change of owners frequently has a very injurious effect upon an animal's reputation. And more than this, we do not always examine and compare flocks enough to know that some folks can raise good sheep as well as some other folks, and that too, without "puffing" people up with the idea of having a "greater knowledge of sheep and sheep husbandry than any other man," or as having the "only pure blood in the country."

EBENEZER BRIDGE.

Pomfret, Windsor Co., Vt., Sept. 1846.

From the Southern Cultivator.

MINERAL MANURES.

Mr. Camak:—In looking over the last year's volume of the *Southern Cultivator*, I came across Prof. Shepard's analysis of cotton, cotton seed, &c.* Professor S. ascertained that cotton wool (fibre or lint,) contained, in its composition, for every ten thousand parts:

Potassa,	31
Lime,	17
Magnesia,	3
Phosphoric acid,	12
Sulphuric acid,	1

or that for every ten thousand lbs. of cotton wool raised upon a soil, it required about 60 lbs. of the above substances.

* Published in this Journal, originally in the Number for June 1844.

In twenty-four analyses of different plantations in Burke Co., Geo., made by Mr. Cotting, taking the mean of the above substances, which he found, with the exception of phosphoric acid, of which he gives no account, we find the result as follows: Sulphate of potassa 2 1-10 per cent., Lime, 4⅓ per cent., Magnesia, ½ per cent., Nitrate of potash, ¼ per cent. The phospohric acid, which must evidently exist in these soils, is, I presume, included in what Mr. C. terms "soluble animal and vegetable matter."

Now an acre of land contains 43,560 square feet. Allowing the soil to be on an average six inches in depth, we shall have 21,780 cubic feet of soil, equal to about 17,820 bushels, or 1,140,480 pints, and the average specific gravity of these soils is 2½ times as great as water, therefore the above amount of soil would weigh 2,851,200 lbs.

Taking the mean of the minerals and acids found by Mr. Cotting as before stated, we should have in this amount of soil:

Lime,	123,552	lbs.
Potassa,	35,998	"
Magnesia,	14,256	"
Sulphuric acid, (united with potassa,)	27,216	"

If then an acre of this soil yields 1,000 lbs. annually of seed cotton for thirty years in succession, the amount of the above minerals would not be appreciably diminished, if the seed be returned to the soil. But if the seed be not returned to the soil, it will make no material difference, with the exception of the phosphoric acid, of which we can make no calculation as to the amount contained in the soil.

But none of these soils will produce cotton to this extent before it becomes exhausted. Upon what then depends this exhaustion. Is it from a failure of the phosphoric acid contained in the soluble animal and vegetable matters of the soil.

Whether this be the case or not, we know that the production is greatly increased by the application of decomposing vegetable and animal manure formed by supplying lots and stables with litter from the woods and other sources, which mixes with and absorbs the solid and fluid parts of the excrements of our domestic animals.

We find too, from the analysis of cotton seed made by Prof. Shepard, that nearly fifty per cent. of their inorganic constituents is phosphoric acid, which, if not returned, the soil will, as he states, rapidly "become completely exhausted and unproductive." Does this not point to the application of the immense beds of shells and shell marl, so liberally disposed through the counties of Burke and Jefferson, which by their gradual decomposition would supply the waste? For these marls and shells, like all other substances of animal origin, contain phosphoric acid to a greater or less extent. Then lime also, where there is a deficiency, as there seems to be in some places, or where there is a superabundance of undecomposed vegetable matter, would be very beneficial. The experience of Gov. Hammond, to whom the agricultural public are so much indebted, is sufficient proof of the benefit of marling.

As to applying other mineral salts, unless there is an ascertained deficiency, I cannot see the use, whether in form of "Bommer's method" or otherwise. Of the benefit to be derived from the application of decomposing vegetable matter, there is no doubt. Yet if it is not placed sufficiently deep, so that a constant moisture secure a steady and gradual decomposition, it may prove injurious to a single crop in a dry season, as many *surface* farmers can testify from last year's experience. Lime will undoubtedly hasten the decomposition of vegetable matter, yet if there is not an abundance of these matters in the soil upon which it can act, it may prove injurious in too great quantity.

There is another substance called "green sand," which contains, judging from the composition of the rock from which it is decomposed, a considerable per cent. of lime and potash. It has been recommended as a mineral manure. I do not know, but would like to be informed whether it is a profitable application.

P. DAVIDSON.

Indian Hill, August 17, 1846.

From the American Farmer.

LIMING, WHEAT GROWING, MANURING, &c.

Ravenwood, Baltimore county,
September 24th, 1846.

To the Editor of the American Farmer:

SIR:—I thought it would not be uninteresting to you or your readers, to transmit to them our *modus operandi*, or the manner of farming in this neighborhood. We have lands of almost every quality, from the poorest and shallowest soils to rich and productive ones, and of course different modes of farming.

The advantage of liming is now generally admitted; the effects resulting from it are so palpable and evident, that the most ignorant can no longer doubt the utility of it; they see old fields, which formerly were too poor to afford sheep sufficient pasture, in a few years after having been limed, produce luxuriant crops. The doubt of its utility is no longer an objection; but some affirm they are too *poor* to lime—that it acts too slowly, and farm still in the old short sighted way of their fathers, endeavoring to make the most profit they can, without regard to the improvement of the soil, and as a matter of course, they and their lands grow poorer every year; while others less able formerly than they, by practising close economy in their farming and household expenses, have been able yearly to purchase a little lime, and gradually to improve their farms and reclaim their waste fields, and they on the contrary are wealthier.

What is the best and most economical way of applying lime?—in what way will it act the quickest and longest? and what is the

proper quantity? is now a source of inquiry and dispute. It is conceded that lime cannot be put on wrong, or rather, in whatever way it may be applied it will act beneficially. Some spread the lime on the surface of old fields which they wish to reclaim, where they say it decomposes the vegetable matter, and causes white clover to spring up, affording a fine sheep pasture for a couple of years; at the end of which time they plough it up, and put in corn: others think that while laying on the surface, it is of more service to the atmosphere than the land; that it absorbs carbonic acid gas from the air, (which the heat of the kiln had formerly separated from it,) and in a few years becomes almost as hard as the stone, and fit for reburning; and also, that in working the corn, the lime sinks below the soil, and is soon out of reach.

These prefer to plough the old field, spread the hot lime, and harrow it in, then sow the field in oats, on which crop they know it acts immediately, and set it in clover; they think also that twenty-five or thirty bushels to the acre, put on in this manner, is sufficient for one application.

The wheat crop of this year turns out poorly, the grains are small and light, and when ground, produce flour of an inferior quality. Early sowing is now generally preferred. Last year the fly attacked the wheat in the spring, when the stalks of the early sown were stout and strong, and were not much injured by them; but the late sown was almost destroyed. There is much difference of opinion respecting the management of this crop; some plough in the first crop of clover while green, let the ground be exposed to the summer sun, and early in the fall cross-plough it, and sow their wheat, which they say cleanses the ground and kills the weeds; but others object, that if the ground is foul it ought not to be put in wheat,—that the hot sun extracts the nitre from it, and bakes it,—that it derives but little benefit from the enriching influence of the dew, which, as all who are acquainted with the theory of dews know, falls in less quantities on the naked ground and on all light colored substances, than on the dark green of plants and clover,—that following the directions of nature, ground should always be covered, or remain naked as little as possible, and that the time when the first crop should be ploughed, farmers are mostly engaged in harvesting. These prefer to let both crops grow,—plough them in while the second crop is green, spread their manure, and put in their wheat with shovel-ploughs or cultivators. Some, more as a matter of convenience, than for any other reason, defer putting on their manure till winter, at which time they have more leisure; they then spread it on the surface of the ground. By which method much is lost by evaporation; and though the wheat may be, and is benefited, yet the ground derives but little advantage from it in the second year; whereas, as we have but little manure, or not as much as we need, we should always apply it so as to produce the best effects and the most lasting.

L. F. B.

PINE STUMPS.

Mr. Samuel Warring, of Morrisdale, Pa., states that he is in the habit of burning out pine stumps. He digs the earth away from the roots, taking care to go as deep as the plough will reach. After the roots were made bare, he made a log-heap around the stump, and he says, "if the weather is suitable, the fire makes clear work of it in a few hours." He states that he last year cleared a field in this way, which was thickly studded with pine stumps and old pine trees. He did the work by "odd jobs," as his labors could be spared from other farm work. The field was so clear by the 10th of September, that its contrast with other lots induced the inquiry how long it had been cleared. He thinks the mode a good one for those who cannot conveniently obtain machinery.

[*Albany Cultivator.*

PRESERVATION OF POTATOES.

A correspondent at New-York, who signs "Germanicus," has been so kind as to forward us the following extract, which he translated from a German publication, on the subject of the potato disease:

"Take 3 large tubs, place them near to each other, and fill them with cold water. In the first tub leave the water pure. In the second put one lb. of *chloride of lime* to each 12 to 13 galls. of water, and in the 3d, one lb. of soda to each 12 to 13 galls. of water. Then wash the potatoes perfectly clean (the diseased and sound ones together) in the first tub; then put them for one half hour in the second tub, in which is the dissolved chloride of lime; from that put them in the third tub, in which is the solution of soda; where, after leaving them twenty minutes, they must be taken out, and washed in fresh cold water, and then dried in the air."

In reference to the above, our correspondent observes:

"Although I am well aware that for a farmer who cultivates large quantities of potatoes, this process will be hardly possible; yet by them it can also be employed for the seed potatoes, as they are perfectly safe, so that even where the potatoes, so prepared, are put in the same cellar with other diseased potatoes, they will not rot, and it would also be for the poorer classes who cultivate enough only for their own use. [*Albany Cultivator.*

Rice paper is not prepared from the rice grain, but is the production of the *solah*, an aquatic plant which grows profusely in all the marshes of China.

ATMOSPHERE NEAR THE SEA.

From various experiments made by the *savans* of Europe, it has been ascertained that the atmosphere over the sea contains less carbonic acid than that over the land; that when the sea is rough, and especially when the wind is violent, particles of sea-water, in a state of great tenuity, float in the air, particularly on the coast where the waves break; and that these particles are carried to a greater or less distance, according to the violence of the wind, and the degree to which the sea is agitated. Hence the influence of sea-air upon the soil and vegetation in places near the sea.

[*Am. Agriculturist.*

MADDER.

Why is it that such a vast amount of money is annually paid by this to foreign countries for this article, when we have a soil and climate so admirably adapted for its production? There is no good reason why we should import madder, and more than that we should import wheat, pork or cheese. It is one of the most sure and profitable crops to which the American farmer can turn his attention. It is not subject to be destroyed by frost, drougth, insects or farm stock. The demand for it is increasing in the same ratio with our manufactures.

James Eaton, of Winfield, Herkimer county, (N. Y.) has cultivated madder for eighteen years. He has madder of three year's growth, planted at the rate of 1,500 hills to the acre, that will yield, if dug the present fall, over 3 lbs. to the hill; this he will not dig till a year from this fall, when it will yield 4 lbs. or over to the hill. He has other madder which at four year's growth, will yield 64 cwt. to the acre, merchantable madder. It may be well to give notice, that he will be able to meet orders for seed the present fall. It will be sold, boxed, and delivered at Utica, at $2.50 per bushel. It requires six bushels to plant an acre. Plant on rich, mellow, dry land. An acre of madder, properly cultivated, and of four years growth, at $16 per cwt.,—the price he has obtained for his—will amount to over $900.

M.

[*Albany Cultivator.*

From the Albany Cultivator.

SCIENTIFIC FACTS.

Nitrogen.—Wheat exhaust soils, because it derives therefrom the the large quantity of nitrogen which the grain contains; but it is this same quantity of nitrogen which renders it more valuable than other grains. Tobacco exhausts powerfully the soil, because it re-

quires an abundance of nitrogen to form its nicotine; but on this principle its value in market depends. To produce indigo, nitrogen must be supplied to the plant by an abundance of rich manure; no crop is more exhausting; but without the nitrogen no coloring matter could be formed. The value is in proportion to the cost; and the success of the cultivator depends on the skill with which he turns the nitrogen of waste and valueless substances into those of high price in market.

—

Blood.—Blood examined under a microscope, is found to consist of minute red particles, floating in a nearly colorless liquor. These red particles, in human blood, are from one four-thousandth to one eight-thousandth of an inch in diameter. In most other animals they are larger.

—

Preserving animal substances.—Putrefaction requires the presence of water; hence by drying animal substances, they are preserved. Hence one reason of the preserving power of salt, from its strong affinity for the water contained in these substances. Alcohol operates partly in the same way. Various other substances act by entering into combination, and the divellent tendencies of the affinities of the constituents of those substances are overcome; among these are corrosive sublimate, copperas, tannin, wood vinegar, and kreosote. A high temperature stops putrefaction by coagulating the azotized materials. Putrefaction is impossible above 182° or below 32° Freezing acts precisely as drying. Hence bodies preserved by frost, and those which remain fresh for years after death on the Arabian deserts, are preserved from the same essential cause.

—

Amber.—According to scientific authority, is the turpentine of unknown trees belonging to a former geological epoch.

—

Butter.—This substance is a mixture of six different facts, viz: common stearine, margarine, and oleïne, with butyrine, capröine, and caprine. Keeping butter after melted, at a temperature of 68° for some days, the stearine and margarine crystallize, while the other remains liquid. Oleïne is separated by solution in alcohol; the others by successive solutions in the same, as they possess different degrees of solubility, but have not been obtained pure.

—

Coloring matter of plants.—The green color of plants is due to the presence of a substance termed *Chlorophyll.* But so excessive is its coloring power, that even very deeply colored plants contain very little of it; and Berzelius calculated that the entire mass of leaves of a large tree, seldom contains ten grains of this substance. Its composition has not been fully ascertained, though it contains no nitrogen. The coloring matter of flowers, from its very minute quantity, it is almost impossible to examine.

Animal heat.—The source of animal heat has greatly puzzled philosophers. It appears to result mainly from the conversion of carbon into carbonic acid, by the union with oxygen in respiration, on the same principle that heat is developed in slow combustion. This is proved by the fact, that the temperature is highest in red-blooded animals, and in the same animal at those periods when the circulation is most rapid and the quantity of air consumed the greatest, as in running or hard exercise. Only eight-tenths of the animal heat can be accounted for in this way; that is, the combustion of a given quantity of carbon is found to produce only eight-tenths of the heat of the body, during the consumption of that quantity in respiration. The rest must therefore be attributed to some action of the system itself.

—

Gastric juice.—The singular solvent energies of gastric juice has led to much inquiry as to its composition. It is specially characterized by a mixture of a quantity of free muriatic acid, with some salts. But if we form artificial gastric juice, by mixing together the muriatic acid and the salts in the proper proportions, it is found totally incapable of dissolving the materials of food, as in digestion. The organic material of the gastric juice, though in very small quantity in any case, is wanting; but all the solvent powers of the natural juice may be at once conferred upon the artificial, by the addition of a very small quantity of the mucus of the stomach.

—

Perspiration of plants.—Dr. Hales planted a sun-flower 3½ feet high in a garden pot, which he covered with thin milled lead, cementing all the joints so that no vapor could escape, except through the sides of the pot and through the plant itself; but providing an aperture, capable of being stopped, through which the earth in the pot could be watered. He found, in fifteen days, after making all necessary allowance for waste, that this plant, 3½ feet high, and with a surface of 5616 square inches above ground, had perspired in twelve hours of a dry warm day, 30 ounces; on another day less dry, 20 ounces; on a dry warm night, without dew, 3 ounces; and on a night with some dew, nothing. When there was rain or copious dew, the plant absorbed two or three ounces.

—

Force of sap.—Braddick, a British physiologist, cut off the stem of a grape, five years old, and covered the wound with a piece of bladder, secured by cement and twine. The bladder, although at first drawn very close to the top of the shoot, soon began to stretch, and to rise like a ball over the wound, and feeling as hard as a cricket ball. In about 48 hours afterwards the force of the sap burst the bladder.

TO OUR SUBSCRIBERS.

We shall continue to publish the names of those generous patrons, who pay us for the *Southern Agriculturist*, because we think they are supporting a work of public utility, and performing the part of patriots. In order to assist those at a distance who have not complied with our frequent calls, we insert a method by which we may get our dues through the Post-office. An order on the Postmaster in Charleston, will be thankfully received; the following is the form:

P. O.,———(Date.)

Sir,—Please pay the Publisher of the Southern Agriculturist, ——— dollars, it being the amount this day deposited by A. B. as subscription money for said paper.

(Signed,) C. D., *Postmaster.*

To the Postmaster at Charleston.

Next, a notice to the Postmaster on whom the order is drawn:—

P. O. ———, (Date.)

Sir,—Mr. A. B., has this day deposited in this office ——— dollars, which you will please pay the publisher of the Southern Agriculturist, on presentation of my order on you for the amount.

Respecfully, yours,

C. D., *Postmaster.*

To the Postmaster at Charleston.

This should be sent under frank to the Postmaster at Charleston, before the money can be drawn.

LIST OF PAYMENTS.

Charleston Library Society,	1845	T M Mellette, Sumter Dist.	'44, '45, '46
Apprentices Library Society,	'44, '45, '46	Gen James Hamilton, Alabama,	1346
Wm A Carson, Esq.,	1846	P T Hickman, Louisiana,	1845, '46
Dr Wm Newton Mercer, Natchez,	'45, '46	J R Mead, do.	1845, '46
A C Henderson, do.	'44, 45' '46		

TO OUR CORRESPONDENTS AND READERS.

We have been furnished by J. F. O'Hear, Esq., with a Report on the *Preservation of the Sweet Potato*, presented to the Agricultural Society of South Carolina at its last meeting, which they requested to be published for the information of the planters. We hope it will be the means of preserving that useful table vegetable from the destruction which too often occurs after the crop is made. We would also call attention to the article on *Swamp Tufts as a Manure.*

How gratifying it would be to us, could we receive monthly, at least, such communications. They would tend to throw light on dark spots of our agricultural labors.

We have concluded in this Number, Mr. Hammond's (of Georgia) Address before the Burke County Central Agricultural Society, which we recommend to our readers.

The rest of the articles will be found not only interesting, but highly useful from the information they contain.